WHAT IS CLAIMED IS:

1. A pump system, comprising;

an implantable pump having a pumping element, the implantable pump being implantable into a patient for pumping a fluid in a patient, the pump having an inlet which directs the fluid to the pumping element and an outlet which delivers fluid from the pumping element; and

an external driver positioned outside the patient's body, the external driver having a driving element, the driving element being drivingly coupled to the pumping element to drive the pumping element from a location outside the patient.

2. The pump system of claim 1, wherein:

the implantable pump has a battery which powers the pump to run the pumping element.

3. The implantable pump system of claim 2, wherein:

the coils also produce magnetic forces which drive the impeller when the coils are energized by the battery.

4. The pump system of claim 1, wherein:

the implantable pump normally operates with the external driver.

5. The implantable pump system of claim 1, wherein:

the driving element includes means for generating a magnetic field.

6. The implantable pump system of claim 5, wherein:

the field generating means includes coils.

7. The implantable pump system of claim 1, wherein:

the pumping element has magnets attached thereto, the pumping element being driven by magnetic forces produced by the external driver.

8. The implantable pump system of claim 1, wherein:

the pumping element includes an impeller.

9. The implantable pump system of claim 1, wherein:

the implantable pump has means for generating power to charge the

battery from mechanical energy of the pumping element when the external driver is driving the impeller.

10. The implantable pump system of claim 1, wherein:

the electrical generator means includes coils which generate electrical energy.

11. A method of operating an implantable pump, comprising the steps of:

providing a blood pump having a pumping element and a battery, the battery providing power to drive the pumping element, the pump also having a fluid inlet and a fluid outlet, the pumping element receiving fluid from the pump inlet and delivering the fluid to the pump outlet;

implanting the blood pump in a patient; and

charging the battery by driving the pumping element with an external driver positioned outside the patient's body, wherein the mechanical motion of the pumping element generates power to charge the battery.

12. The method of claim 11, wherein:

the providing step is carried out with the pumping element having magnets attached thereto, the pumping element being driven by magnetic forces produced between the magnets and the external driver, the external driver having means for generating a magnetic field.

13. The method of claim 12, wherein:

the providing step is carried out with the magnetic field generating means including coils.

14. The method of claim 11, wherein:

the providing step is carried out with the pump having internal coils which drive the pumping element;

the charging step is carried out with the mechanical energy of the pumping element being transferred into electrical energy at the internal coils, the electrical energy produced at the internal coils being used to charge the battery.

15. The method of claim 11, wherein:

the providing step is carried out with the pumping element being an impeller.